Name: Date:
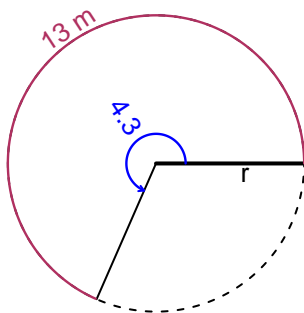_____   _____

Trig Final (TEST v688)

- You should have a calculator (like Desmos) and a unit-circle reference sheet.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The arc length is 13 meters.
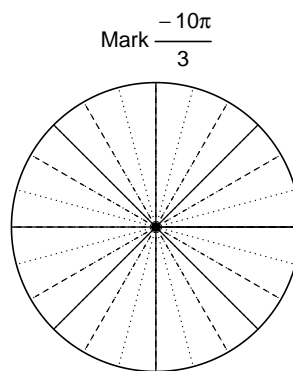The angle measure is 4.3 radians. How long is the radius in meters?

Question 2

Consider angles $\frac{13\pi}{4}$ and $\frac{-10\pi}{3}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle
below in standard position. Then, find **exact** expressions for $\sin\left(\frac{13\pi}{4}\right)$ and $\cos\left(\frac{-10\pi}{3}\right)$ by using a unit circle
(provided separately).

Mark $\dfrac{13\pi}{4}$

Mark $\dfrac{-10\pi}{3}$

Find sin(13π/4)

Find cos(−10π/3)

1

Question 3

If $\sin(\theta) = \frac{-80}{89}$, and θ is in quadrant III, determine an exact value for $\cos(\theta)$.

Question 4

A mass-spring system oscillates vertically with a midline at $y = -8.62$ meters, a frequency of 6.43 Hz, and an amplitude of 2.03 meters. At $t = 0$, the mass is at the midline and moving down. Write an equation to model the height (y in meters) as a function of time (t in seconds).